

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2nd April 2008 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims **1, 5, 6** and **10** recite in the preamble "sending first and second signals"; yet, in the body recite the limitation "sending one of the first signals" and "sending one of the second signals"; wherein the preamble is read as *only one* first signal and *only one* second signal while the body is read as "*plurality* of first signals" and "*plurality* of second signals". Therefore, it is recommended to modify the preamble to clearly define "a plurality of first signals and a plurality of second signals to a plurality of equipments". Otherwise, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims **1, 4, 5, 6, 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dahlman et al (US 2002/0145988 A1)** in view of **Walton et al (US 2006/0121946 A1)**.

7. Claims **1 and 5**: **Dahlman et al** show in figure 3 a base station comprising computer program product having program means for sending a plurality of first signals and a plurality of second signals to a plurality of user equipments, the program performing steps of: providing a dedicated channel for each one of the plurality of user equipments ([0007] lines 17-20); assigning (allocating) a carrier frequency of a set of at least first and second carrier frequencies ($f_{DL,1}$ $f_{DL,2}$) to each of the dedicated channels ([0008] lines 1-9); providing a code-multiplexed shared channel for the plurality of user equipments ([0007] lines 20-23). Yet, sending one of the first signals to one of the plurality of user equipments on the dedicated channel of that user equipment on the assigned carrier frequency by a transmit diversity scheme; and sending one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on a carrier frequency assigned to that user equipment by multi-user

diversity scheme, are not *very specifically* mentioned by **Dahlman** et al. **Walton** et al disclose a base station performing transmit diversity scheme for downlink ([0066]); as well as performing multi-user diversity scheme using a scheduler to identify spatial signatures (frequencies) and antenna assignments in the base station ([0323], [0396-400]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the transmit diversity scheme and multi-user diversity scheme of **Walton** et al to the first and second carrier frequencies assigned in the base station of **Dahlman** et al to maximize throughput.

8. Claims 4 and 9, applied to claims 1 and 6: **Dahlman** et al, as modified by **Walton** et al, further disclose the set of carrier frequencies having a number of n carrier frequencies, wherein n may be any non-negative integers ([0008]; $f_{DL,1}$ $f_{DL,2}$).

9. Claims 6 and 10: Referring to claims 1 and 5, **Dahlman** et al, as modified by **Walton** et al, disclose the claimed invention yet not *specifically* first, second, third, fourth or fifth separate components to perform the steps mentioned in claims 1 and 5. Nonetheless, the examiner takes official notice that it would have been a matter of design choice to perform the five steps in five separate components as a known option within his or her technical grasp to provide both transmit diversity and multi-user diversity schemes.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dahlman** et al (**US 2002/0145988 A1**) in view of **Walton** et al (**US 2006/0121946 A1**), applied to claim 1, and in further view of **Chang** et al (**US 2002/0136193 A1**).

11. Claim **2**, applied to claim **1**: **Dahlman** et al, as modified by **Walton** et al, disclose the claimed invention yet may not have *specifically* mentioned the dedicated channel type as DSCH-type, and the code-multiplexed shared channel is HS-DSCH type channel of a HSDPA type transmission system. **Chang** et al disclose a DSCH channel as a dedicated channel assigned to each UE ([0029] lines 17-20), and an HS-DSCH channel for transmitting HSDPA service data ([0029] lines 11-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the shared control channel and dedicated channel to use HS-DSCH and DSCH as taught by **Chang** et al, to the base station of **Dahlman** et al, as modified by **Walton** et al, to better control transmission power upon a cell change.

12. Claims **3** and **8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dahlman** et al (**US 2002/0145988 A1**) in view of **Walton** et al (**US 2006/0121946 A1**), applied to claims **1** and **6**, and in further view of **Argaman** et al (**US 2006/0052065 A1**).

13. Claims **3** and **8**, applied to claims **1** and **6**: **Dahlman** et al, as modified by **Walton** et al, disclose the claimed invention (**Walton** et al disclose a component that sends signals in transmit diversity scheme) except may not have *specifically* mentioned performing sending of the first and second signals by means of first and second MCPAs being coupled to first and second antennas, the first and second MCPAs having at least the first and second frequencies. **Argaman** et al show in figure 8 a base transceiver station comprising MCPA 85 and MCPA 86 are coupled to a first antenna 83 and a second antenna 84 respectively, wherein the MCPA 85 and MCPA 86 each may carry 3 (at least

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two) CDMA carriers ([0140]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the MCPA and antenna structure of **Argaman** et al, to the base station of **Dahlman** et al, as modified by **Walton** et al, for transmit diversity.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dahlman** et al (**US 2002/0145988 A1**) in view of **Walton** et al (**US 2006/0121946 A1**), applied to claim 6, and in further view of **Isokangas** et al (**US 2004/0213297 A1**).

Claim 7, applied to claim 6: **Dahlman** et al, as modified by **Walton** et al, disclose the claimed invention except may not have *specifically* mentioned the scheduler sending the second signals only when a constructive channel fade is detected. **Isokangas** et al clearly teach a scheduler that exploits multi-user diversity by scheduling only those users in constructive fades in shared HS-DSCH ([0008]). It would have been obvious to one of ordinary skill in the art at the time the invention was created to modify the scheduler of **Dahlman** et al, as modified by **Walton** et al, to send signals only when a constructive channel fade is detected as taught by **Isokangas** et al, to better match current channel conditions.

Claims 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dahlman** et al (**US 2002/0145988 A1**) in view of **Walton** et al (**US 2006/0121946 A1**), applied to claims 1 and 12, and in further view of **Mimura** (**US 6,021,123**).

Claims 11, 12 and 13, applied to claims 1 and 12: **Dahlman** et al, as modified by **Walton** et al, disclose the claimed invention yet may not have *specifically* mentioned each one of the plurality of UEs are split into a first group of UEs and a second group of UEs wherein the first group of UEs are assigned to the first carrier frequencies and the second group of UEs are assigned to the second frequencies. **Mimura** teaches a CDMA cellular system that divides frequencies into a first group and a second group, wherein the first group of frequencies are assigned to base stations_{1-n} and the second group of frequencies are assigned to base stations_{a-c} wherein a mobile station is assigned to the first group of frequencies (abstract), and further the mobile station may be assigned to the second group of frequencies based on rate of use (abstract; fig. 13 wherein first group $f_{01}, f_{02} \rightarrow$ handoff \rightarrow second group f_{11-13}). Therefore, if there are multiple mobile stations wherein one group of mobiles have high use rate while the other group of mobiles have low use rate, the high use rate mobiles would be assigned to the first group of frequencies while the low use rate mobiles would be assigned to the second group of frequencies (col. 12 lines 57-67; col. 13 lines 1-8). It would have been obvious to one of ordinary skill in the art at the time the invention was created to apply the CDMA frequencies and group assignment technique of **Mimura** to the base station of **Dahlman** et al, as modified by **Walton** et al, to allow smoother handoffs.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Szewai Wong whose telephone number is

(571)270-1780. The examiner can normally be reached on Monday through Friday 8:30 am - 6:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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